Amendments to the Claims:

This listing of Claims will replace all prior versions, and listings, of claims in the application:

1. - 32. (Cancelled)

33. (Currently Amended) A method implemented by a network node for ~~of~~ controlling a queue buffer, the queue buffer being connected to a link and being arranged to queue data units of a flow in a queue, comprising the steps of:

determining a value of a length parameter related to the length of the queue;

comparing the value with a length threshold value;

performing a congestion notification procedure if the value is greater than the length threshold value, wherein the congestion notification procedure when performed drops or marks one or more data units; [[and]]

performing an automatic threshold adaptation procedure, wherein the automatic threshold adaptation procedure comprises a procedure for adjusting the length threshold value on the basis of one or more flow control parameters, wherein the automatic threshold adaptation procedure determines when the congestion notification procedure would be performed to drop or mark one or more of the data units; and

determining, in a procedure, one or more of the one or more flow control parameters from a flow control parameter introduced by one of a sender and a receiver of the flow queued in the queue.

34. (Previously Presented) The method of claim 33, wherein the one or more flow control parameters are predetermined values.

35. (Previously Presented) The method of claim 34, wherein the predetermined values are associated with known flow control procedures for one or both of data unit senders and data unit receivers.

36. (Canceled)

37. (Currently Amended) The method of claim 35 [[36]], further comprising the steps of introducing the flow control parameter by the receiver and inserting it into acknowledgment data units sent from the receiver to the sender so as to acknowledge the correct receipt of data units.

38. (Previously Presented) The method of claim 37, wherein the buffer is provided in a network node of a communication network connecting the sender and the receiver, further comprising the step of extracting, in a procedure for determining the flow control parameter, the flow control parameter from the acknowledgement data units at the network node.

39. (Currently Amended) The method of claim 37 [[38]], wherein the buffer is provided in a first network node of a communication network connecting the sender and the receiver, further comprising the steps of:

extracting, in a procedure for determining the flow control parameter, the flow control parameter from the acknowledgement data units at a second network node different from the first network node; and

sending the flow control parameter from the second network node to the first network node.

40. (Previously Presented) The method of claim 33, further comprising performing a flow control for the flow in a window-based queue, wherein one of the one or more flow control parameters is a control window.

41. (Previously Presented) The method of claim 40, wherein the control window is introduced by the receiver and expresses a limitation of how many data units the receiver can handle.

42. (Previously Presented) The method of claim 40, wherein the control window is introduced by the sender and expresses a limitation of how many data units the sender can send.

43. (Previously Presented) The method of claim 33, further comprising performing a rate-based flow control for the flow in the queue, wherein one of the one or more flow control parameters is a control rate.

44. (Previously Presented) The method of claim 43, wherein the control rate is introduced by the receiver and expresses a data rate limitation for arriving data units that the receiver can handle.

45. (Previously Presented) The method of claim 43, wherein the control rate is introduced by the sender and expresses one of a data rate limitation for the rate of data units that the sender can send, a current sending rate and a target sending rate.

46. (Previously Presented) The method of claim 33, wherein the automatic threshold adaptation procedure further comprises the steps of:

estimating a link capacity value;

analyzing whether the performance of the congestion notification procedure will lead to an underutilization of the link due to a reaction of the sender to the congestion notification under the condition that the length threshold value is set equal to the estimated link capacity value;

and adapting the length threshold value on the basis of a result of the analyzing step by setting the length threshold value equal to the estimated link capacity value if the analyzing step indicates no underutilization; and

setting the length threshold value larger than the estimated link capacity value otherwise.

47. (Previously Presented) The method of claim 46, wherein the length threshold value is set to a value derived on the basis of one of the flow control parameters if the analyzing step indicates underutilization.

48. (Previously Presented) The method of claim 46, further comprising the steps of:

sending, by a sender of the flow in the queue, the data units in a predetermined sequence;

sending, by a receiver of the flow in the queue, acknowledgment messages for acknowledging the correct receipt of the data units, where each acknowledgment message identifies the last data unit correctly received in the sequence;

sending, by the receiver to the sender, a first window value expressing a limitation of how many data units the receiver can handle;

performing, by the sender, a window-based flow control using a send window, the send window being selected as the minimum of the first window value and a second window value, such that the sender must not send data units with a sequence number higher than the sum of the highest acknowledged sequence number and the send window, and the sender dividing the second window value by two as a reaction to a congestion notification, and thereafter increasing the second window by a predetermined increment for each duplicate acknowledgment message it receives, wherein one of the one or more flow control parameters is the first window value and the length threshold value is initially set equal to the estimated link capacity value, and

setting, by the automatic threshold adaptation procedure, the length threshold value equal to the estimated link capacity value if the first window value is greater than 1.5 times the sum of the estimated link capacity value and the momentary value of the length threshold value.

49. (Previously Presented) The method of claim 48, further comprising the step of setting, by the automatic threshold adaptation procedure, the length threshold value equal to the estimated link capacity value if the first window value is greater or equal to

1.5 times the sum of the estimated link capacity value and the momentary value of the length threshold value.

50. (Previously Presented) The method of claim 49, wherein the length threshold value is set equal to a function of the first window value if the first window value does not fulfill the condition for setting the length threshold value equal to the estimated link capacity value.

51. (Previously Presented) The method of claim 50, wherein the function is the difference between the first window value and a predetermined reduction value.

52. (Previously Presented) The method of claim 33, as implemented in a computer program product arranged to execute the method on a programmable data processing device connected to a communication network containing the link.

53. (Currently Amended) A network node including a queue buffer controller for controlling a queue buffer coupled to a link and arranged to queue data units of a flow in a queue, comprising:

a queue length determinator ~~adapted to determine~~ for determining a value of a length parameter related to the length of the queue, a comparator for comparing the value with a length threshold value;

a congestion notifier for performing a congestion notification procedure if the value is greater than the length threshold value, wherein the congestion notification procedure when performed drops or marks one or more data units; [[and]]

a threshold adaptor for automatically adapting the length threshold value, wherein the threshold adaptor is arranged for adjusting the length threshold value on the basis of one or more flow control parameters, wherein the automatic threshold adaptation procedure determines when the congestion notification procedure would be performed to drop or mark one or more of the data units; and

a flow control parameter determinator for determining one or more of the one or more flow control parameters from a flow control parameter introduced by one of a sender and a receiver of the flow queued in the queue.

54. (Currently Amended) The ~~queue buffer controller~~ network node of claim 53, wherein the one or more flow control parameters are predetermined values.

55. (Currently Amended) The ~~queue buffer controller~~ network node of claim 54, wherein the predetermined values are stored in the queue buffer controller and associated with known flow control procedures for data unit receivers.

56. (Canceled)

57. (Currently Amended) The ~~queue buffer controller~~ network node of claim 53 [[56]], further comprising:

the flow control parameter being introduced by the receiver and inserted into acknowledgment data units sent from the receiver to the sender for acknowledging the correct receipt of data units,

the queue buffer being provided in a network node of a communication network connecting the sender and the receiver, wherein the flow control parameter determinator is arranged for extracting the flow control parameter from the acknowledgement data units at the network node.

58. (Currently Amended) The ~~queue buffer controller~~ network node of claim 53, wherein the flow control parameter is introduced by the receiver and inserted into acknowledgment data units sent from the receiver to the sender for acknowledging the correct receipt of data units, and wherein the queue buffer is provided in a first network node of a communication network connecting the sender and the receiver, wherein the flow control parameter determinator is arranged for receiving the flow control parameter from a second network node at which the flow control parameter was extracted.

59. (Currently Amended) The ~~queue buffer controller~~ network node of ~~one of~~ claim 58, wherein the threshold adaptor further comprises:

an estimator for estimating a link capacity value;

an analyzer for analyzing whether the performance of the congestion notification procedure will lead to an underutilization of the link due to a reaction of the sender to the congestion notification under the condition that the length threshold value is set equal to the estimated link capacity value; and

an adaptor for adapting the length threshold value on the basis of a result of the analyzing step by setting the length threshold value equal to the estimated link capacity value if the analyzing step indicates no underutilization, and setting the length threshold value larger than the estimated link capacity value otherwise.

60. (Currently Amended) The ~~queue buffer controller~~ network node of claim 59, wherein the threshold adaptor is arranged to set the length threshold value to a value derived on the basis of one of the flow control parameters if the analyzer indicates underutilization.

61. (Currently Amended) The ~~queue buffer controller~~ network node of claim 59, further comprising:

[[a]] the sender of the flow in the queue sends the data units in a predetermined sequence;

[[a]] the receiver of the flow in the queue sends to the sender acknowledgment messages for acknowledging the correct receipt of the data units, wherein each acknowledgment message identifies the last data unit correctly received in the sequence, and the receiver further adapted to send to the sender a first window value expressing a limitation of how many data units the receiver can handle;

the sender performs a window-based flow control using a send window, the send window being selected as the minimum of the first window value and a second window value, adapted such that the sender must not send data units with a sequence number

higher than the sum of the highest acknowledged sequence number and the send window;

the sender further divides the second window value by two as a reaction to a congestion notification, and thereafter increase the second window by a predetermined increment for each duplicate acknowledgment message it receives, wherein one of the one or more flow control parameters is the first window value; and

the threshold adaptor arranged to initially set the length threshold value equal to the estimated link capacity value, and to set the length threshold value equal to the estimated link capacity value if the first window value is greater than 1.5 times the sum of the estimated link capacity value and the momentary value of the length threshold value.

62. (Currently Amended) The ~~queue buffer controller~~ network node of claim 61, wherein the threshold adaptor is arranged for setting the length threshold value equal to the estimated link capacity value if the first window value is greater or equal to 1.5 times the sum of the estimated link capacity value and the momentary value of the length threshold value.

63. (Currently Amended) The ~~queue buffer controller~~ network node of claim 62, wherein the threshold adaptor is arranged to set the length threshold value equal to a function of the first window value if the first window value does not fulfill the condition for setting the length threshold value equal to the estimated link capacity value.

64. (Currently Amended) The ~~queue buffer controller~~ network node of claim 63, wherein the function is the difference between the first window value and a predetermined reduction value.